

Mineral Industry Surveys

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NICKEL IN JULY 2002

In July, reported domestic nickel consumption on a daily average basis was 4% less than that of June, according to the U.S. Geological Survey. Average daily nickel consumption of cathode, pellets, briquets, and ferronickel for stainless steel was 74.8 metric tons per day (t/d)—11% less than the 83.7 t/d for June and 9% less than the 82.0 t/d (revised) for July 2001. Consumption of elemental nickel to make nickel-base corrosion-resistant alloys was slightly greater than the corresponding tonnage reported for June. The small increase for corrosion-resistant alloys was partially offset by a small decrease in consumption for superalloys. Sales to plating companies averaged 28.4 t/d, about 8% less than the June sales figure. Total consumption for the first 7 months of 2002 was down 16% from the 52,500 t reported for the corresponding period of 2001.

On July 31, U.S. consumer stocks of cathode, pellets, briquets, and powder totaled 1,590 t—14% less than the 1,840 t for June 30 and 20% less than the 1,990 t reported for yearend 2001. Stocks in London Metal Exchange (LME) warehouses worldwide decreased 15% during July to 23,670 t, but were 163% greater than on March 31, 2001, when LME stocks bottomed out at 9,000 t after a 16-month slide. Preliminary data collected by the International Nickel Study Group indicated that, at the end of June 2002, world nickel producers (excluding those in Austria, China, the former Yugoslavia, and the Ural area of Russia) had approximately 92,800 t of nickel in primary products in stock, of which 68,700 t or 74% were Class I materials. Class I materials are refined products with a nickel (Ni) content of 99% or greater (electrolytic cathode, pellets, briquets, rondelles, powder, etc.). Class II materials include ferronickel, oxide sinter, and East Asian utility nickel—products with a Ni content less than 99%.

Percentages reported in the above paragraphs may not be verifiable owing to concealment of individual company proprietary data and late reporting of data.

The United States imported 56,900 t of primary nickel in the first half of 2002, 20% less than the 71,000 t for the corresponding period of 2001. Class I materials accounted for 87% of total primary imports received during the first 6 months

of 2002. Trade data for July 2002 will appear in a subsequent report.

Update: LionOre acquires part of Anglo American's nickel interests in Botswana

On September 30, LionOre Mining International Ltd. acquired the 43.35% equity position in Tati Nickel Mining Co. (Pty.) Ltd. held by Anglo American plc of the United Kingdom. The \$75.9 million acquisition increased LionOre's equity in Tati Nickel from 41.65% to 85%. The remaining 15% is controlled by the Government of Botswana. LionOre also was in the process of acquiring Anglo American's 23% equity position in Bamangwato Concessions Ltd. (BCL) (LionOre Mining International Ltd., 2002a§¹).

Tati Nickel was formed in 1988 to develop the Selkirk and Phoenix nickel-copper sulfide deposits in northeastern Botswana. The two mines are only 15 kilometers (km) apart and are located some 50 km east of Francistown. The Tati district has a long mining history and contains ancient copper workings, some of which date back to 600 A.D. The Selkirk underground mine was commissioned in 1989 and had been shipping about 60,000 metric tons of ore per year (t/yr) to BCL's smelter at Selebi-Phikwe. Tati was forced to close the Selkirk Mine in the first half of 2002 due to depletion of reserves. The Phoenix Mine, an open pit operation with a dry magnetic separation plant, began production in 1995 and currently treats 1.7 million metric tons of ore per year, generating 120,000 t/yr of nickel concentrates for the BCL smelter (LionOre International Mining Ltd., 2002b§).

BCL's smelter is about 350 km northeast of Gaborone, the capital of Botswana. The bulk of the concentrates for the smelter come from BCL's three neighboring cobalt-copper-nickel mines—Phikwe, Selebi, and Selebi North. In 2000, the smelter produced 62,000 t of matte containing 24,218 t of

¹References that include a section twist (§) are found in the Internet References Cited Section.

nickel, 20,977 t of copper, and 319 t of cobalt (Coakley, 2001§).

Tati is the process of commissioning a new concentrator at the Phoenix Mine. The new concentrator is a wet separation facility designed to generate 12,500 t of recoverable nickel, and should be fully operational by yearend.

LionOre also has nickel interests in Australia. In November 2001, an 80% subsidiary, LionOre (Nickel) Australia Ltd. commissioned the Emily Ann underground mine in the Lake Johnston area of Western Australia. The Emily Ann concentrates are being shipped to Thompson, Manitoba, for further processing by Inco Ltd. LionOre (Nickel) Australia has a 31% interest in the neighboring Maggie Hays massive sulfide deposit. The remaining 69% interest in Maggie Hays currently is held by QNI Pty. Ltd., a wholly owned subsidiary of BHP Billiton plc. On May 8, LionOre negotiated an option agreement to buy out QNI (Mining Journal, 2002).

Reference Cited

Mining Journal, 2002, LionOre's double header: Mining Journal, v.338, no. 8684, May 10, p. 333, 335.

Internet References Cited

Coakley, G.J., 2001, The mineral industry of Botswana [in 2000], accessed October 18, 2002, at URL <http://minerals.usgs.gov/minerals/pubs/country/africa.html>.

LionOre Mining International Ltd., 2002a (September 30), LionOre Mining International Ltd.—Tati acquisition completed, accessed October 16, 2002, at URL <http://www2.cdn-news.com/scripts/ccn-release.pl?/2002/09/30/0930102n.html?cp=lim>.

LionOre Mining International Ltd., 2002b, Tati Nickel Mining Company (PTY) Limited—(LionOre—41.65%), accessed October 16, 2002 at URL <http://www.lionore.com/files/tati.asp>.

TABLE 1
CONSUMPTION OF NICKEL (EXCLUSIVE OF SCRAP), BY FORM AND USE 1/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total	Total year to date
2001:					
July	6,470	799	197	7,470	52,500 r/
August	5,920	981	296	7,190	59,600 r/
September	5,460	1,090	187	6,730	66,400 r/
October	5,490	757	160	6,410	72,800 r/
November	5,000	608	323	5,930	78,700 r/
December	4,460	537	215	5,210	83,900 r/
January-December	71,300	10,100	2,500 r/	83,900 r/	XX
2002:					
January	5,080	774	292	6,150	6,150
February	5,000	890	281	6,170	12,300
March	5,030	723	375	6,130	18,500
April	5,370	879	286	6,540	25,000
May	5,030	722	87	5,840	30,800
June	5,450 r/	873	261	6,580 r/	37,400
July:					
Steel:					
Stainless and heat resisting	1,590	730	W	2,320	16,800
Alloy (excludes stainless)	169	--	W	169	1,950
Superalloys	1,190	--	W	1,190	8,410
Copper-nickel alloys	W	--	--	W	W
Electric, magnetic, and expansion alloys	11	--	--	11	76
Other nickel & nickel alloys	W	--	W	W	W
Cast iron	W	--	--	W	W
Electroplating (sales to platers)	880	--	--	880	6,710
Chemical and chemical uses	W	--	--	W	W
Other uses	1,690	--	272	1,960	10,000
Total reported	5,530 2/	730	272	6,530	43,900
Total all companies (calc) 3/	XX	XX	XX	9,310	62,700
2002: January-July	36,500	5,590	1,860	43,900	XX
2001: January-July	45,000	6,160	1,320	52,500	XX

r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Other uses" category. XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Of consumption, 4,650 metric tons were consumed as cathodes and pellets, the remainder as briquets and powder.

3/ Figures represent calculated apparent consumption; based on the revised proportion of reported primary consumption (70.11%) to apparent primary consumption for 2000.

TABLE 2
ENDING STOCKS OF NICKEL (EXCLUSIVE OF SCRAP) HELD BY CONSUMERS,
BY FORM AND USE 1/ 2/

(Metric tons, nickel content)

Period	Cathodes, pellets, briquets, and powder	Ferronickel	Oxide-sinter, salts, and other forms	Total
2001:				
July	2,140	995	93	3,230
August	2,390	645	107	3,140
September	2,500	309	102	2,910
October	2,770	391	226	3,390
November	2,480	330	198	3,010
December	1,990	522	289	2,800
2002:				
January	1,800	832	282	2,920
February	2,110	454	106	2,670
March	2,230	152	134	2,510
April	2,490	513	94	3,100
May	2,250	82	127	2,460
June	1,840 r/	63	138 r/	2,040 r/
July:				
Steel (stainless, heat resisting and alloy	591	98	(3/)	689
Nonferrous alloys 4/	978	--	(3/)	978
Foundry (cast irons)	(3/)	--	(3/)	(3/)
Chemical (catalysts, ceramics, plating salts, etc.) and unspecified uses	17	--	98	115
Total	1,590	98	98	1,780

r/ Revised. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Stocks held by companies that consume nickel in more than one end use category are credited to the major category. Stocks are subject to revisions owing to inventory adjustment.

3/ Included in the "Chemical and unspecified uses" category.

4/ Includes superalloys, nickel-copper and copper-nickel alloys, permanent magnet alloys, and other nickel alloys.

TABLE 3
CONSUMPTION AND ENDING STOCKS OF PURCHASED SECONDARY NICKEL, BY USE 1/

(Metric tons, nickel content)

Period	Consumption			Stocks		
	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap	Ferrous scrap 2/	Nonferrous scrap 3/	Total scrap
2001:						
July	5,360	771	6,130	2,770	120	2,890
August	5,590	777	6,370	2,780	113	2,890
September	5,590	751	6,350	3,030	105	3,130
October	5,150	1,540	6,690	3,170	100	3,270
November	3,970	829	4,800	3,330	92	3,420
December	3,950	784	4,730	3,750	93	3,850
January-December	55,100	11,400	66,400	XX	XX	XX
2002:						
January	4,940	784	5,720	3,180	86	3,270
February	4,920	810	5,730	3,070	88	3,160
March	5,050	767	5,810	2,960	102	3,060
April	5,190	740	5,930	2,980	109	3,090
May	5,020	620	5,640	3,690	97	3,790
June	6,340	549 r/	6,890 r/	3,340	103	3,440
July	5,950	718	6,670	3,320	97	3,410

r/ Revised. XX Not applicable.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Nickel content is calculated from an average nickel content and the reported gross weight of scrap.

3/ Combined consumption and stocks of aluminum-base, copper-base, and nickel-base scrap.

TABLE 4
U.S. IMPORTS FOR CONSUMPTION OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content) 2/

Period and country of origin	Cathodes, pellets, and briquets	Powder and flakes	Ferro- nickel	Metal- lurgical- grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date 4/	Wrought nickel
2001:										
June	8,230	674	1,130	200	563	415	253	11,500	75,600	87
July	9,490	505	795	195	548	274	207	12,000	87,600	99
August	6,510	1,100	1,790	16	569	352	176	10,500	98,200	82
September	7,980	438	1,080	120	238	294	202	10,400	109,000	156
October	11,200	617	160	263	434	265	279	13,200	122,000	142
November	9,160	434	1,330	162	429	174	322	12,000	134,000	54
December	8,360	640	707	188	344	193	276	10,700	144,000	95
January-December	111,000	8,310	11,600	1,350	5,580	3,180	3,200	144,000	XX	1,140
2002:										
January	6,550	597	446	400	443	283	244	8,960	8,960	74
February	11,900	428	620	128	341	235	235	13,900	22,900	109
March	5,760	813	679	54	315	275	277	8,180	31,000	30
April	6,220	551	983	--	221	349	274	8,590	39,600	116
May	6,600	590	1,240	14	222	478	297	9,450	49,100	53
June:										
Australia	500	46	--	6	--	--	--	552	4,250	--
Brazil	60	--	--	--	--	--	--	60	677	--
Canada	3,390	285	--	232	59	324	27	4,320	29,600	(5/)
China	--	--	--	--	--	--	--	0	--	--
Colombia	--	--	236	--	--	14	--	250	951	--
Dominican Republic	--	--	737	--	--	1	--	738	2,640	--
Finland	40	--	--	--	--	--	37	77	2,180	--
France	297	--	--	--	37	1	16	351	1,380	(5/)
Germany	--	13	--	--	26	--	34	73	361	23
Japan	--	4	--	--	1	--	22	27	254	11
Mexico	--	--	--	--	--	86	1	87	495	--
New Caledonia	--	--	--	--	--	--	--	--	300	--
Norway	1,970	--	--	--	--	--	--	1,970	4,580	--
Russia	2,540	--	112	--	--	--	--	2,650	10,100	--
South Africa	18	20	--	--	--	--	--	38	160	--
Sweden	--	1	--	--	--	--	--	1	26	--
United Kingdom	19	8	--	--	35	--	17	79	452	1
Venezuela	--	--	78	--	--	27	--	105	922	--
Zimbabwe	115	--	--	--	--	--	--	115	641	--
Other	--	14	--	--	16	7	74	111	684	8
Total	8,950	391	1,160	238	174	460	228	11,600	60,700	43
2002: January-June	46,000	3,370	5,140	834	1,720	2,080	1,560	60,700	XX	427
2001: January-June	58,500	4,570	5,730	402	3,020	1,620	1,740	75,600	XX	507

XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide and hydroxide (65%).

3/ Excludes wrought nickel.

4/ May include revisions for prior months.

5/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 5
U.S. EXPORTS OF NICKEL, BY COUNTRY 1/

(Metric tons, nickel content) 2/

Period and country of destination	Cathodes, pellets, and briquets	Powder and flakes	Ferro- nickel	Metal- lurgical- grade oxide	Waste and scrap	Stainless steel scrap	Chemicals	Total 3/	Total year to date	Wrought nickel
2001:										
June	166	162	--	95	1,480	2,680	219	4,800	32,000	49
July	154	73	12	161	1,370	3,520	452	5,740	37,700	99
August	90	108	11	205	1,160	1,600	224	3,400	41,100	116
September	156	115	1	161	1,030	1,970	178	3,610	44,800	151
October	170	90	14	142	1,740	2,680	346	5,180	49,900	177
November	158	85	--	132	1,100	1,350	148	2,970	52,900	124
December	125	72	(4/)	131	1,290	2,310	198	4,130	57,000	163
January-December	1,400	1,380	50	1,940	15,700	32,900	3,680	57,000	XX	2,400
2002:										
January	344	135	6	122	1,110	1,030	233	2,990	2,990	192
February	170	81	3	152	989	3,720	229	5,350	8,330	167
March	245	151	(4/)	64	1,470	2,040	219	4,190	12,500	262
April	187	113	--	67	1,280	3,890	226	5,770	18,300	139
May	65	119	10	111 r/	1,360	1,900 r/	213	3,780	22,100	271
June:										
Australia	--	3	--	--	5	--	--	8	45	(4/)
Belgium	--	16	--	--	--	17	--	33	241	--
Canada	5	46	--	17	1,190	237	27	1,520	7,900	4
Germany	--	14	(4/)	--	40	20	3	77	429	5
India	--	1	--	--	9	49	--	59	592	--
Italy	--	(4/)	--	--	--	9	--	9	20	46
Japan	--	2	--	2	64	15	31	114	1,140	--
Korea, Republic of	--	2	--	--	184	990	30	1,210	5,640	2
Mexico	99	3	--	--	3	(4/)	12	117	965	142
Netherlands	--	1	--	--	9	1	1	13	287	4
South Africa	--	--	--	(4/)	--	--	(4/)	(4/)	7	--
Spain	--	--	--	--	--	--	--	--	674	6
Sweden	--	--	--	--	--	--	--	--	411	--
Taiwan	--	1	--	--	--	685	14	700	4,710	--
United Kingdom	--	3	--	--	26	6	2	37	302	3
Other	1	42	--	--	23	470	35	571	3,160	71
Total	105	134	(4/)	19	1,550	2,500	155	4,470	26,500	283
2002: January-June	1,120	734	20	536	7,760	15,100	1,280	26,500	XX	1,320
2001: January-June	548	835	11	1,010	8,030	19,400	2,130	32,000	XX	1,570

r/ Revised. XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ The nickel contents are assumed to be as follows: metallurgical-grade oxide (77%), waste and scrap (50%), and stainless steel scrap (7.5%). The chemical category includes chlorides (25%), sulfates (22%), and other salts (22%), supported catalysts (22%), and oxide, sesquioxide, and hydroxide (65%).

3/ Excludes wrought nickel.

4/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 6
U.S. IMPORTS FOR CONSUMPTION OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of origin	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
2001:									
June	276	366	423	238	(2/)	358	152	1,810	10,700
July	413	389	511	293	1	199	141	1,950	12,600
August	520	308	318	203	(2/)	148	159	1,660	14,300
September	357	161	247	202	(2/)	193	129	1,290	15,600
October	321	271	452	312	1	234	182	1,770	17,300
November	341	268	467	122	(2/)	153	143	1,490	18,800
December	350	354	342	300	1	140	126	1,610	20,400
January-December	4,110	3,860	5,030	3,070	15	2,600	1,770	20,400	XX
2002:									
January	353	231	399	329	--	203	155	1,670	1,670
February	183	177	408	227	1	248	154	1,400	3,070
March	256	207	407	293	(2/)	327	159	1,650	4,720
April	390	229	531	254	(2/)	233	151	1,790	6,510
May	179	248	456	289	1	337	162	1,670	8,180
June:									
Australia	160	39	(2/)	--	--	--	--	200	723
Belgium	13	--	8	1	--	--	(2/)	22	101
Canada	--	--	--	--	--	3	5	8	152
France	--	7	52	7	--	25	1	91	599
Germany	--	125	95	173	15	95	6	507	3,320
Italy	--	55	9	--	--	6	(2/)	70	367
Japan	--	--	(2/)	3	--	370	1	374	1,300
Mexico	--	--	--	--	--	--	78	78	478
Netherlands	--	--	--	--	--	--	7	7	35
South Africa	39	--	--	--	--	--	(2/)	39	232
Sweden	--	20	206	3	--	10	--	239	1,320
United Kingdom	13	48	11	100	--	2	1	175	959
Other	7	--	20	--	(2/)	(2/)	23	50	457
Total	232	294	401	287	15	511	122	1,860	10,000
2002: January-June	1,590	1,390	2,600	1,680	17	1,860	903	10,000	XX
2001: January-June	1,810	2,110	2,690	1,640	12	1,540	891	10,700	XX

XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 7
U.S. EXPORTS OF NICKEL ALLOYS, BY COUNTRY 1/

(Metric tons, gross weight)

Period and country of destination	Unwrought alloyed ingot	Bars, rods, and profiles	Wire	Plates and sheets	Foil	Tubes and pipes	Other alloyed articles	Total	Total year to date
2001:									
June	1,210	648	184	668	4	128	221	3,060	16,700
July	1,420	744	106	615	9	163	263	3,320	20,100
August	1,240	642	165	548	5	129	354	3,080	23,100
September	1,610	667	97	543	6	155	390	3,470	26,600
October	1,300	601	171	770	13	107	950	3,920	30,500
November	1,190	641	135	623	23	124	333	3,070	33,600
December	954	591	82	404	7	164	160	2,360	36,000
January-December	13,400	7,890	1,660	7,030	146	1,900	3,970	36,000	XX
2002:									
January	861	599	93	572	9	134	247	2,520	2,520
February	808	600	106	596	43	115	340	2,610	5,120
March	884	626	178	505	11	197	653	3,050	8,180
April	618	451	96	476	12	204	278	2,130	10,300
May	862	495	99	638	32	136	297	2,560	12,900
June:									
Australia	28	(2/)	(2/)	(2/)	--	7	10	45	422
Belgium	7	97	1	10	--	--	5	120	1,030
Canada	8	56	14	43	4	33	53	211	1,550
France	143	35	1	21	1	1	11	213	2,420
Germany	706	30	1	20	(2/)	2	4	763	1,730
India	1	5	(2/)	9	--	--	(2/)	15	67
Ireland	--	--	(2/)	3	--	(2/)	(2/)	3	33
Italy	71	5	(2/)	39	(2/)	5	8	128	769
Japan	(2/)	11	1	68	--	(2/)	3	83	531
Korea, Republic of	22	4	1	83	--	2	6	118	332
Mexico	(2/)	1	98	--	(2/)	34	125	258	1,570
Netherlands	--	2	(2/)	1	--	1	(2/)	4	30
Singapore	(2/)	7	2	2	--	(2/)	5	16	92
Spain	(2/)	--	--	--	(2/)	--	(2/)	1	25
Sweden	--	39	--	5	--	(2/)	(2/)	44	69
Switzerland	39	2	2	6	--	2	(2/)	51	394
Taiwan	8	8	(2/)	27	--	7	5	55	215
United Kingdom	32	71	4	135	2	11	47	302	2,320
Other	1	20	17	95	1	22	81	237	1,950
Total	1,070	393	142	567	8	127	363	2,670	15,500
2002: January-June	5,100	3,160	714	3,350	115	914	2,180	15,500	XX
2001: January-June	5,650	4,000	905	3,530	83	1,060	1,520	16,700	XX

XX Not applicable. -- Zero.

1/ Data are rounded to no more than three significant digits; may not add to totals shown.

2/ Less than 1/2 unit.

Source: U.S. Census Bureau.

TABLE 8
NICKEL CONSUMPTION IN CAST AND WROUGHT PRODUCTS

	Percent	
	Wrought	Cast
July 2002:		
Stainless and heat resisting steels	74	26
Alloy steels	100	(1/)
Superalloys	82	18
Copper-nickel alloys	99	1
Other nickel-base alloys	100	(1/)

1/ Less than 1/2 unit.

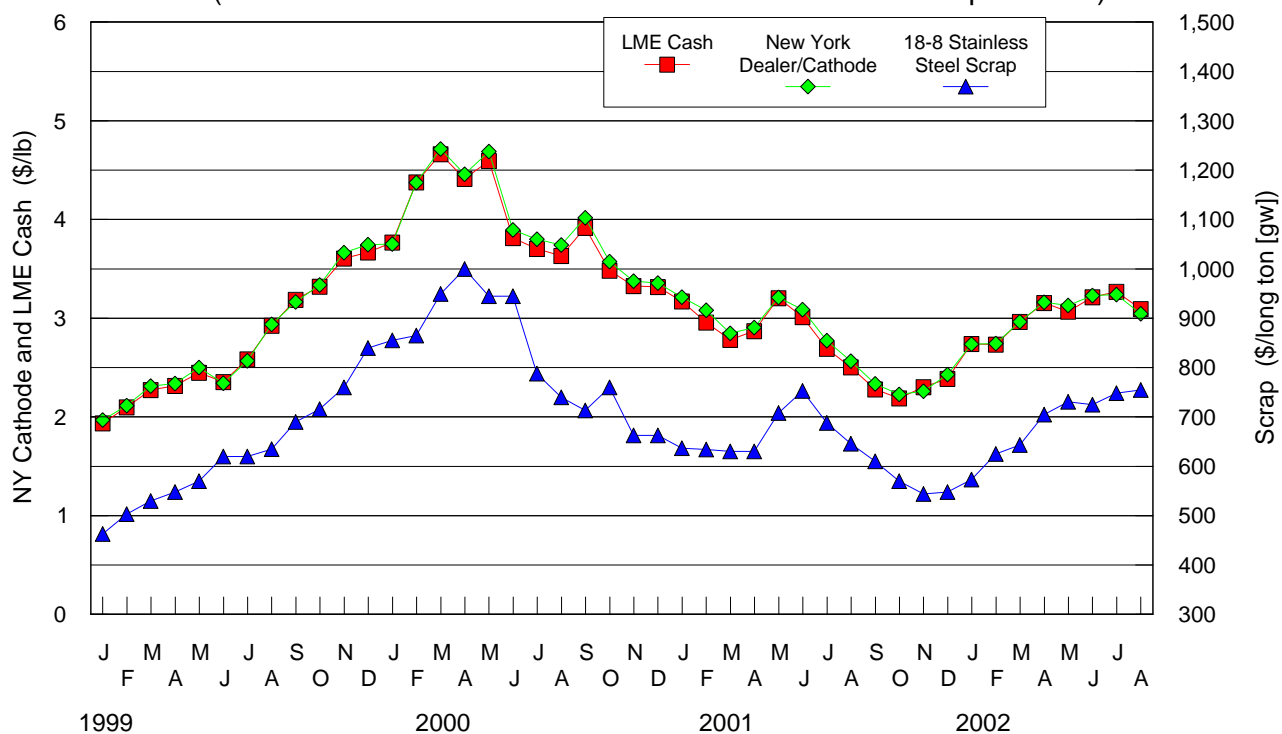
TABLE 9
NICKEL PRICES

Date	Cathode NY Dealer \$/lb.	LME Cash \$/t	LME Cash \$/lb.	18/8 Stainless steel scrap Pittsburgh \$/long ton(gw)
2002:				
Average for week ending:				
July 5	3.27-3.37	7,126.500	3.233	720-730
July 12	3.30-3.46	7,395.500	3.355	745-765
July 19	3.45-3.53	7,504.000	3.404	745-765
July 26	3.05-3.45	6,823.000	3.095	745-765
August 2	3.04-3.17	6,649.500	3.016	745-765
August 9	3.05-3.16	6,669.000	3.025	745-765
August 16	3.10-3.17	6,720.000	3.048	745-765
August 23	3.14-3.22	6,750.000	3.062	745-765
August 30	3.14-3.21	6,788.750	3.079	745-765
Average for month of:				
January	2.736	6,043.182	2.741	573
February	2.745	6,029.250	2.735	625
March	2.963	6,537.500	2.965	643
April	3.163	6,958.214	3.156	705
May	3.130	6,761.364	3.067	731
June	3.213	7,119.861	3.230	725
July	3.268	7,142.717	3.240	748
August	3.094	6,717.143	3.047	755

Source: Platts Metals Week and American Metal Market.

1999-2002 AVERAGE MONTHLY PRICES

(Derived from Metals Week and American Metal Market quotations)



1999-2002 STOCKS

